Amendments to the Claims

Please amend claims 58, 59, 66, 74, 81, 83, 93, 102, and 106 as illustrated below. Please add new claims 107-109. The following listing of claims replaces all prior versions, and listings, of claims in the above-identified application.

Listing of Claims

1-57. **(Canceled)**

58. **(Currently amended)** A method for patterning a platinum layer in the fabrication of integrated circuits, the method comprising:

providing a substrate assembly including a surface;

forming a patterned metal-containing adhesion layer on the surface, resulting in at least one exposed surface region of the substrate assembly;

forming platinum on the patterned metal-containing adhesion layer and the at least one exposed surface region of the substrate assembly;

annealing the substrate assembly including the patterned metal-containing adhesion layer and the platinum thereon, causing ~~pooling of the platinum~~ islands of non-adhered platinum to form on the at least one exposed surface region of the substrate assembly, while portions of the platinum on the patterned metal-containing adhesion layer adhere in a configuration substantially the same as that of the adhesion layer; and

removing ~~at least a portion of~~ the islands of non-adhered platinum from the at least one exposed surface region of the substrate assembly resulting in a patterned platinum layer.

59. **(Currently amended)** The method of claim 58, wherein forming the platinum comprises forming ~~the~~ a platinum layer having a thickness of about 600 Å or less.

60. **(Original)** The method of claim 59, wherein forming the platinum comprises forming the platinum layer having a thickness of about 500 Å or less.

61. **(Original)** The method of claim 58, wherein annealing the substrate assembly comprises annealing the substrate assembly at a temperature less than the melting point of the at least one exposed surface region.

62. **(Original)** The method of claim 58, wherein annealing the substrate assembly comprises performing a rapid thermal anneal in an atmosphere of at least one of oxygen and nitrogen.

63. **(Original)** The method of claim 58, wherein the patterned metal-containing adhesion layer comprises at least one material selected from the group consisting of titanium, tantalum, tungsten, rhodium, iridium, cobalt, and nitrides, oxides, and silicides thereof.

64. **(Original)** The method of claim 58, wherein the patterned metal-containing adhesion layer comprises titanium nitride.

65. **(Original)** The method of claim 58, wherein the at least one exposed surface region comprises at least one material selected from the group consisting of silicon, silicon dioxide, BPSG, PSG, Al_2O_3, and combinations thereof.

66. **(Currently amended)** A method for forming a discontinuous conductive layer in the fabrication of integrated circuits, the method comprising:

providing a substrate assembly comprising a surface having at least one metal-containing adhesion region and at least one surface region;

forming a platinum layer on the surface of the substrate assembly;

annealing the substrate assembly including the platinum layer formed thereon, causing ~~pooling of the platinum layer~~ islands of non-adhered platinum to form on the at least one surface region of the substrate assembly, while portions of the platinum layer on the at least one metal-containing adhesion region are maintained in a configuration substantially the same as that of the adhesion region; and

removing ~~at least a portion of the platinum layer~~ the islands of non-adhered platinum from the at least one surface region resulting in a discontinuous platinum layer ~~on the at least one metal-containing adhesion region.~~

67. **(Original)** The method of claim 66, wherein forming the platinum layer comprises forming the platinum layer having a thickness of about 600 Å or less.

68. **(Original)** The method of claim 67, wherein forming the platinum layer comprises forming the platinum layer having a thickness of about 500 Å or less.

69. **(Original)** The method of claim 66, wherein annealing the substrate assembly comprises annealing the substrate assembly at a temperature less than the melting point of the at least one surface region.

70. **(Original)** The method of claim 66, wherein annealing the substrate assembly comprises performing a rapid thermal anneal in an atmosphere of at least one of oxygen and nitrogen.

71. **(Original)** The method of claim 66, wherein the at least one metal-containing adhesion region comprises at least one material selected from the group consisting of titanium, tantalum, tungsten, rhodium, iridium, cobalt, and nitrides, oxides, and silicides thereof.

72. **(Original)** The method of claim 66, wherein the at least one metal-containing adhesion region comprises titanium nitride.

73. **(Original)** The method of claim 66, wherein the at least one surface region comprises at least one material selected from the group consisting of silicon, silicon dioxide, BPSG, PSG, Al_2O_3, and a combination thereof.

74. **(Currently amended)** A method for forming a patterned platinum layer in the fabrication of integrated circuits, the method comprising:

providing a substrate assembly including a surface having a patterned metal-containing adhesion portion thereon;

depositing a platinum layer on the surface of the substrate assembly and the patterned metal-containing adhesion portion, wherein the platinum layer has a thickness of about 600 Å or less;

annealing the substrate assembly at a temperature of about 1100°C or less, causing ~~pooling of~~ the platinum layer to form unadhered pools on the surface of the substrate assembly, while portions of the platinum layer on the patterned metal-containing adhesion portion are maintained in a configuration substantially the same as that of the adhesion portion; and

removing the unadhered pools of platinum from ~~at least a portion of~~ the surface of the substrate assembly such that a resulting patterned platinum layer has a configuration substantially that of the patterned metal-containing adhesion portion~~, wherein annealing the substrate assembly and removing unadhered platinum from the portion of the surface of the substrate assembly is performed prior to forming any other materials on the platinum layer~~.

75. **(Original)** The method of claim 74, wherein the temperature is between about 650°C and about 1100°C.

76. **(Original)** The method of claim 74, wherein annealing the substrate assembly occurs in an atmosphere comprising at least one compound selected from the group consisting of oxygen, ozone, nitrogen, argon, NO_x, SO_3, N_2O, and combinations thereof.

77. **(Original)** The method of claim 74, wherein annealing the substrate assembly comprises performing a rapid thermal anneal in an atmosphere of at least one of oxygen and nitrogen.

78. **(Original)** The method of claim 74, wherein the at least one patterned metal-containing adhesion portion comprises at least one material selected from the group consisting of titanium, tantalum, tungsten, rhodium, iridium, cobalt, and nitrides, oxides, and silicides thereof.

79. **(Original)** The method of claim 74, wherein the at least one patterned metal-containing adhesion portion comprises titanium nitride.

80. **(Original)** The method of claim 74, wherein the surface of the substrate assembly comprises at least one material selected from the group consisting of silicon, silicon dioxide, BPSG, PSG, Al_2O_3, and combinations thereof.

81. **(Currently Amended)** The method of claim 74, wherein removing the unadhered pools of platinum comprises rinsing the substrate assembly in a rinsing composition for a period of time of about 5 minutes or less.

82. **(Original)** The method of claim 81, wherein the rinsing composition comprises at least one composition selected from the group consisting of water, aqua regia, hydrofluoric acid, hydrochloric acid, hydrogen peroxide, and combinations thereof.

83. **(Currently amended)** A method for use in forming a capacitor, the method comprising:

providing a substrate assembly, the substrate assembly including at least one surface; and

forming an electrode on the at least one surface of the substrate assembly, wherein forming the electrode comprises at least forming a platinum electrode layer, wherein forming the platinum electrode layer comprises:

forming a discontinuous metal-containing adhesion layer on the at least one surface;

forming a platinum layer on at least portions of the at least one surface of the substrate assembly and the discontinuous metal-containing adhesion layer;

annealing the substrate assembly, causing ~~pooling of the platinum layer~~ islands of non-adhered platinum to form on portions of the at least one surface of the substrate assembly, while portions of the platinum layer on the discontinuous metal-containing adhesion layer adhere to the adhesion layer in a configuration substantially the same as that of the adhesion layer; and

removing ~~at least a portion of the platinum layer~~ the islands of non-adhered platinum from the at least one surface of the substrate assembly ~~resulting in a discontinuous platinum layer~~.

84. **(Original)** The method of claim 83, wherein the substrate assembly includes an opening defined therein, wherein the opening is defined by a bottom surface of the substrate assembly and at least one side wall surface extending therefrom and further wherein the discontinuous metal-containing adhesion layer is formed on the surfaces defining the opening.

85. **(Original)** The method of claim 83, wherein the platinum layer has a thickness of about 600 Å or less.

86. **(Original)** The method of claim 85, wherein the platinum layer has a thickness of about 500 Å or less.

87. **(Original)** The method of claim 83, wherein annealing the substrate assembly comprises annealing the substrate assembly at a temperature between about 650°C and about 1100°C.

88. **(Original)** The method of claim 83, wherein annealing the substrate assembly occurs in an atmosphere comprising at least one compound selected from the group consisting of oxygen, ozone, nitrogen, argon, NO_x, SO_3, N_2O, and combinations thereof.

89. **(Original)** The method of claim 83, wherein annealing the substrate assembly comprises performing a rapid thermal anneal in an atmosphere of at least one of oxygen and nitrogen.

90. **(Original)** The method of claim 83, wherein the discontinuous metal-containing adhesion layer comprises at least one material selected from the group consisting of titanium, tantalum, tungsten, rhodium, iridium, cobalt, and nitrides, oxides, and silicides thereof.

91. **(Original)** The method of claim 83, wherein the discontinuous metal-containing adhesion layer comprises titanium nitride.

92. **(Original)** The method of claim 83, wherein the at least one surface of the substrate assembly comprises at least one material selected from the group consisting of silicon, silicon dioxide, BPSG, PSG, Al_2O_3, and a combination thereof.

93. **(Currently amended)** A method for forming a discontinuous conductive layer in the fabrication of integrated circuits, the method comprising:

providing a substrate assembly having a surface comprising at least one metal-containing adhesion region and at least one surface region;

forming a conductive metal layer on the surface of the substrate assembly, wherein the conductive metal layer comprises a metal different from a metal in the at least one metal-containing adhesion region;

annealing the substrate assembly including the conductive metal layer, causing islands of non-adhered conductive metal to form ~~pooling of the conductive metal layer~~ on the at least one surface region of the substrate assembly, while portions of the conductive metal layer on the at least one metal-containing adhesion region are maintained in a configuration substantially the same as that of the adhesion region; and

removing ~~at least a portion of the~~ the islands of non-adhered conductive metal ~~layer~~ from the at least one surface region resulting in a discontinuous conductive metal layer ~~on the at least one metal-containing adhesion region~~.

94. **(Original)** The method of claim 93, wherein forming the conductive metal layer comprises forming the conductive metal layer having a thickness of about 600 Å or less.

95. **(Original)** The method of claim 94, wherein forming the conductive metal layer comprises forming the conductive metal layer having a thickness of about 500 Å or less.

96. **(Original)** The method of claim 93, wherein annealing the substrate assembly comprises annealing the substrate assembly at a temperature less than the melting point of the at least one surface region.

97. **(Original)** The method of claim 93, wherein annealing the substrate assembly comprises performing a rapid thermal anneal in an atmosphere of at least one of oxygen and nitrogen.

98. **(Original)** The method of claim 93, wherein the at least one metal-containing adhesion region comprises at least one material selected from the group consisting of titanium, tantalum, tungsten, rhodium, iridium, cobalt, and nitrides, oxides, and silicides thereof.

99. **(Original)** The method of claim 93, wherein the at least one metal-containing adhesion region comprises titanium nitride.

100. **(Original)** The method of claim 93, wherein the at least one surface region comprises at least one material selected from the group consisting of silicon, silicon dioxide, BPSG, PSG, and Al_2O_3.

101. **(Original)** The method of claim 93, wherein the conductive metal layer comprises at least one metal selected from the group consisting of platinum or ruthenium.

102. **(Currently amended)** A method for patterning a platinum layer in the fabrication of integrated circuits, the method comprising:

providing a substrate assembly including a surface;

forming a titanium nitride layer on the surface of the substrate assembly;

patterning the titanium nitride layer to form a patterned titanium nitride adhesion layer on the surface, wherein patterning the titanium nitride layer results in at least one exposed surface region of the substrate assembly;

depositing a material comprising platinum on the patterned titanium nitride adhesion layer and the at least one exposed surface region of the substrate assembly;

annealing the substrate assembly including the patterned titanium nitride adhesion layer and the material comprising platinum, causing ~~pooling of the~~ islands of the material comprising platinum on the at least one exposed surface region of the substrate assembly, while portions of the material comprising platinum on the patterned titanium nitride adhesion layer are maintained in a configuration substantially the same as that of the adhesion layer; and

removing ~~at least a portion of~~ the islands of material comprising platinum from the at least one exposed surface region of the substrate assembly resulting in a patterned ~~platinum~~ layer comprising platinum.

103. **(Original)** The method of claim 102, wherein depositing the material comprising platinum comprises depositing a platinum layer having a thickness of about 600 Å or less.

104. **(Original)** The method of claim 102, wherein depositing the material comprising platinum comprises depositing a platinum layer using a chemical vapor deposition process.

105. **(Original)** The method of claim 102, wherein depositing the material comprising platinum comprises depositing a platinum layer consisting essentially of platinum.

106. **(Currently amended)** A method for forming a discontinuous conductive layer, the method comprising:

providing a substrate assembly having a surface comprising a metal-containing adhesion region and a surface region;

forming a conductive metal layer on the metal-containing adhesion region and the surface region of the substrate assembly;

annealing the substrate assembly including the conductive metal layer, whereby the conductive metal layer forms pools of conductive metal material on the surface region of the substrate assembly, while portions of the conductive metal layer on the metal-containing adhesion region are maintained in a configuration substantially the same as that of the adhesion region; and

removing the pools of conductive metal material from the surface region by rinsing the substrate assembly in a rinsing composition.

107. **(New)** A method for patterning platinum in the fabrication of integrated circuits, the method comprising:

providing a substrate assembly including a surface;

forming a patterned metal-containing adhesion region on the surface, resulting in at least one exposed surface region of the substrate assembly;

forming platinum on the patterned metal-containing adhesion region and the at least one exposed surface region of the substrate assembly; and

annealing the substrate assembly, causing pooling of portions of the platinum on the at least one exposed surface region of the substrate assembly without pooling portions of the platinum on the patterned metal-containing adhesion region.

108. **(New)** The method of claim 107, further comprising removing the pooled portions of the platinum from the at least one exposed surface region of the substrate assembly.

109. **(New)** The method of claim 107, whercin forming the platinum comprises forming a platinum layer having a thickness of about 600 Å or less.